

# [Sarah with acute lymphoblastic leukemia (all) are](https://assignbuster.com/sarah-with-acute-lymphoblastic-leukemia-all-are/)

SarahElNassir ElNigoumi, Haya Mohammed AlKhayyat INTRODUCTIONSwine-origininfluenza A (H1N1) was officially announces as a pandemic universally in June2009 (1)  Although it can leadto mild clinical illness, some patients diagnosed with H1N1 suffer from lessthan mild symptoms and more complications (2).

These risks includemore systemic complications like pneumonia and bacterial co-infection.(3). Swine flu should be closely monitored in the pediatric population , because therisk factors and complications may be extremely severe in this specifiedpopulation.

Also, the disease can easily evolve and be catalyzed to reachdangerous levels . Some of these severe conditions include chronic lung diseaseand neurological conditions. Furthermore, children with acute lymphoblastic leukemia(ALL)  are at a higher risk ofcomplications when exposed to H1N1 swine flu as a  result of their low immunity (4). We present a case of a patient whopresented with H1N1 pneumonia associated with pancytopenia.

CASE PRESENTATIONThis is a threeyear old Bahraini boy, who is a known case of Alpha Thalassemia trait. Hepresented to the Emergency Department with history of fever, cough and poorappetite of one week duration. Medical advice was sought at a private hospitalprior to his admission, where he was then transferred to ourhospital by anambulance as a case of H1N1 Pneumonia with anemia and thrombocytopenia. He is aproduct of full term, normal delivery with a normal birth weight and had noperinatal complications. His immunization status is up to date and he wasdevelopmentally normal. The boy’s medical history is only significant for AlphaThalassemia trait. There was neither a history of previous hospital admissionsnor surgical procedures.

Family history was significant for both sickle celldisease and thalassemia as the father has both conditions. On admission, he was in respiratory distress with mild pallor and high grade fever (40degrees Celcius). His Oxygen saturation was maintained above 95% in 2 Liters ofOxygen. Chest auscultation revealed reduced air entry over the right lung withbilateral crepitations.

Physical examination was negative for lymphadenopathyor hepatosplenomegaly.  A completeblood count on admission, showed normal leukocyte count (8. 3 x 10^9/L) withmicrocytic, hypochromic anemia (8. 5 g/dl) and thrombocytopenia (15 x 10^9/L).

Theblood film revealed atypical lymphocytes with no blast cells. In view ofhis respiratory symptoms, a chest x-ray was done which showed infiltrations ofthe right upper lobe. The patientwas admitted and kept under cardiac monitor. He was started on Tamiflu, Erythromycin, Vancomycin, Rocephin, Methylprednisolone and bronchodilators.

Also, he received multiple platelet transfusions. He continuedto have fever and a complete blood count was repeated which showedleukopenia (2. 83x 10^9/L) with an absolute neutrophil count of 0, hemoglobin of 7. 1g/dl and a plateletcount of 8×10^9/L. Repeated blood film was also negative for blast cells.

Hisblood culture result was sterile. His antibiotics were changed to Tazocin andGentamycin and a Hematologist advice was sought for bone marrow examination torule out malignancy and was started on IVIG. Later on, blood film was repeated and showed blast cells. This was followed by BoneMarrow examination which confirmed the diagnosis of Acute LymphoblasticLeukemia.  DISCUSSIONSince theWHO declaration of pandemic of influenza H1N1 in 2009, the new strain of thevirus attracted the interest of scientists to work on the prevention and themanagement of the infectionmechanism in immunocompromised cases. Influenzadisease has been a serious health problem in patients with hematologicalmalignancies undergoing systematic chemotherapy, or hematopoietic stem celltransplant, even before the emergence of the novel 2009 H1N1 influenza strain.

A few studies have revealed seasonal influenza outbreaks among these patientsand depicted the susceptibility of immunocompromised populations. However, limitednumber of studies report that there is a possible association between cancersand acquirement of influenza in the community and health care facilities, andconsequently influenza can cause criticalhealth problems to cancer patients(5-8). A studydone in Turkey 2010, which included 31 children who presented with flu symptomsin 2009; and were confirmed to have pandemic influenza H1N1 influenza by two steppolymerase chain reaction from nasopharyngealspecimens.

Complete blood countand peripheral smear out of which 4 had bone marrow aspiration for intractablefever accompanying cytopenia(s), which were later examined by hematologist. These patients were then evaluated for elevated hemophagyticlymphohistocytosis. Fisher’s exact test was used to analyze the association between the presence ofan underlying chronic disorder and hospital admission with the development of cytopenia(9-10). The Turkish study also revealed that four patients withpersistent fever and cytopenia (s) had bone marrow aspiration examination. ofthese, 1 had a new diagnosis of acute myeloid leukemia (patient with downsyndrome) and 1 ALL and 1  acute myeloidleukemia (AML) patient had no hemophagocytosis and were in remission(11)A studypublished in Riyadh in 2013, on 80 children during period ofOctober 2010–April 2011 included a one-year-old female patient with leukemiawithout any history of influenza vaccination coverage who presented withtypical influenza-like disease symptoms including fever > 39? c, myalgia, pharyngitis, and cough, with no recent travel abroad during thewinter.

The authorsconcluded that influenza virus’s infection in leukemiapatient was associated with mild symptoms like those of seasonal influenza-likeillness including fever, cough, and sore throat and due to the child’s age andimmunocompromised state one-year-old leukemia in fact, role in theestablishment of co-infection in patients was not linked with the severity of thesymptoms(12).  ConclusionMost studies, including this report have shown anassociation between severely immunosuppressed patients and developing influenzaassociated pneumonia. Unfortunately, due to these children’s’immunosuppression, vaccines such as the seasonal influenza vaccine may be of verylittle benefit. The major aim of this report was to identify the associationbetween the child’s immunocompromised state and pancytopenia with the incidenceof developing viral pneumonia.

Data on association of leukemia with H1N1 andother viral pneumonias is limited and further studies in association withoncologist and hematologist are required.